SUPERFUND STANDBY PROGRAM
New York State
Department of Environmental Conservation
625 Broadway
Albany, New York 12233-7016

SITE ID 355: GARDNER DENVER MACHINERY, INC.

SITE SUMMARY REPORT

Onondaga Lake Project
Task 5: 104(e) Review

Site No. 734030-002
Work Assignment Number D003060-27

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1.0 SITE DESCRIPTION

The information referenced in this report was obtained from the 104(e) responses of Gardner Denver Machinery, Inc. (Gardner Denver, Company ID 2055). Two mailings were received from Gardner Denver dated January 15, 1998 and October 20, 2000, and one mailing was received from Diebold Incorporated dated July 31, 2001. Information obtained from other sources is noted, as necessary.

1.1 Location

The Gardner Denver Machinery facility is located at 1 Lamson Street in Syracuse, Onondaga County, New York (Site ID 355). Figure 1 shows the location of the facility in relation to Onondaga Lake. The site is bound by Tyson Place along the southern perimeter of the property, Conrail railroad tracks along the northeast perimeter, and Lamson Street along the western perimeter of the property. The site location is shown on the USGS Syracuse East topographic map in Figure 2. The Gardner Denver site occupies approximately 25 acres (Mailing No. 1, p. R3).

1.2 Geology

The surficial geology of the Syracuse area was strongly influenced by the most recent glacial advance (Wisconsin age, 12,000 to 14,500 years ago). The area occupies a region that was covered by Lake Iroquois, a large glacial lake situated in front of the ice margin. The broad flat-lying plains situated north from Syracuse to Lake Ontario were formed beneath Lake Iroquois and are characterized by lacustrine fine sand and silt deposits. Additional glacial features common to the region are moraines, drumlins, U-shaped valleys, and meltwater channels.

Onondaga Lake and all its major tributaries lie within glacial meltwater channels. These features originally were conduits carrying meltwater at large volumes and high velocities away from the glacier. Sediment types characteristically found in meltwater channels are sands and gravels. These relict features form important water bearing and transmitting units which form an irregularly branching, net-like pattern.

The bedrock geology of the greater Syracuse area includes Lower to Middle Paleozoic age sedimentary rocks predominated by carbonate (dolostone and limestone) and shale, and containing some sandstone, siltstone, and evaporites. Bedrock directly beneath the area (as well as underneath Onondaga Lake) is Silurian Vernon Shale (Rickard and Fischer, 1970) which has low permeability, but does possess secondary porosity due to fractures. Site-specific geological information was not provided in the documents available for review.

1.3 Hydrogeology

According to the Syracuse East USGS map, the ground surface elevation at the Gardner Denver facility is approximately 440 feet NGVD (see Figure 2). Groundwater elevation data were not provided in the information available for review, however, shallow groundwater is expected to flow to the northeast based on surface contours. The nearest water body is the South Branch of Ley Creek located northeast of the Gardner Denver site at approximately 400 feet NGVD.

1.4 Surface Water Hydrology

The Gardner Denver facility is located within the Onondaga Lake basin, approximately 4 miles northeast of the eastern shore of Onondaga Lake and approximately 2,500 ft southwest of the South Branch of Ley Creek. Surface contours on the USGS topographic map depict surface water from the Gardner Denver site to likely flow to the northeast towards the

Conrail railroad tracks (see Figure 2). Information regarding stormwater management practices was not provided in the documents available for review.

2.0 SITE HISTORY

2.1 Owners/Operators

The Gardner Denver facility (RCRA ID # NYDOO4522462), has been in operation from approximately 1922 to the present (Mailing No. 1, p.000003). Gardner Denver states "manufacturing operations at the facility will terminate in 1998," however it was not indicated in the documents available for review if facility operations were, in fact, terminated at this time (Mailing No. 1, p. 000003). During the period 1922 through 1940, this facility was known as The Lamson Company. During the period 1940 through 1996, this facility was known as Lamson Corporation. The Lamson Corporation was a subsidiary of Diebold, Inc. from 1965 through 1980 when it was then purchased by Jacques Lepage and became a subsidiary of Noramptco, Inc. Following this purchase, the facility was acquired by Gardner Denver Machinery, Inc. in August 1996.

2.2 Site Operations

Site operations at the Gardner Denver facility have consisted of the manufacture of material handling conveyor systems (1922 through1987); air tube systems (1922 through 1986); and blowers and exhausters (1946 to the present). Gardner Denver's review of historical company documents indicated that refrigerator parts and machine gun mounts were also manufactured on-site during World War II, but specific process operations were not known for these products (Mailing No. 1, p. 000004). Engineering drawings dated for the period 1923 indicate that a brass foundry and sewage disposal plant existed on site, however both are no longer in operation (Mailing No. 1, p. 000004). It was indicated that "Gardner Denver has no information regarding its [brass foundry] past operations or indeed, whether it was owned and/or operated by Gardner Denver's predecessors" (Mailing No. 1, p. 000004). Gardner Denver also concluded that "no information is available regarding the date of

construction of this [on-site sewage disposal] plant or operations conducted at the plant" (Mailing No. 1, p. 000004). An industrial site plan provided by Gardner Denver is provided herein as Figure 3 (Mailing No.1, p.000408) which indicates the location of the paint shop, manufacturing area, shipping area, and two municipal sanitary sewer manholes.

Process operations were included in the documents reviewed for the years 1978 through 1997. Gardner Denver stated that "little information is available concerning historical processes and associated waste streams [for years prior to 1978]" (Mailing No. 1, p. 000004) and "This absence of information is unsurprising since retention of environmental records was not required until recent years" (Mailing No. 1, p. 000004). The facility processes, as described in the three mailings, are described below. The specific waste streams generated and disposal practices associated with these processes are discussed in detail in Section 2.3.

- During the period 1922 through 1987, conveyors and conveyor equipment were manufactured at the facility (Mailing No. 1, p. 000003). Specific manufacturing processes for this product line were not included in the documents reviewed (Mailing No. 1, p. R3), however, the paint-based waste streams associated with this period, as discussed in further detail in Section 2.3, imply that painting and priming operations were conducted during this period.

- During the period 1922 through 1986, air tube systems were manufactured at the Gardner Denver facility (Mailing No. 1, p. 000003). Specific process operations were not included in the documents reviewed, however, it can be inferred from the standard industrial classification for the facility included in Mailing No. 1 (p. 000003) that the manufacture of air tube systems consisted of the production of air purification equipment.

- During the period 1978 through 1997, blowers and exhausters were manufactured at this facility (Mailing No. 1, p. 000007; Mailing No. 3, p. 000416). Manufacture of these parts involved metal machining and fabrication, welding, parts washing, assembly and painting. Initially, metal raw materials were machined and manufactured into impellers, housings and inlet and outlet manifolds. Fabrication activities involved punching, drilling, forming, bending, and welding these impellers, and inlet and outlet manifolds. The metal parts were then welded together to form components, frames, and motor mountings (Mailing No. 1, p. 000007).

- Additionally, during the period 1978 through 1997 electrical components were assembled but not manufactured at this facility (Mailing No. 1, p. 000007). Gardner Denver did not provide detailed information regarding the assembly of electrical components, however, they state in Mailing No. 3 (p. 000418) that trichloroethane was used to clean the electronic components prior to assembly.

- Historical activities included the manufacture of refrigerator parts and machine gun mounts during the World War II period, however, Gardner Denver states that specific process operations are not known for these products (Mailing No. 1, p. 000004).

- During the period from 1991 through 1997, parts washing consisted of cleaning of paint equipment and other process operation components. Several types of parts washers were used at the Gardner Denver facility. Degreasing of parts was conducted using "naptha type solvents" in cold cleaning tanks (Mailing No. 3, p. 000419). Detailed information regarding the "naptha type solvents" used in this process are discussed in Section 2.3.

- Also during this period (1991 through 1997), the phosphatizing operation conducted as part of the development of photographs "consisted of cleaning the parts to be

coated with an acidic solution and then coating the part with iron phosphate" (Mailing No. 3, p. 000419). Similar processes referred to as the printing press, photographic, and blueprint were listed in a table provided in Mailing No.1 (p. 000008).

2.3 Generation and Disposal of Wastes

Descriptions of wastes generated and disposal locations were provided by Gardner Denver for the period 1978 through 1997 (Mailing No. 1, pp. 000005-000012; Mailing No. 3, pp. 000418-000420). Gardner Denver provided a list of documents maintained at their facility for the period 1978 through 1997 which included information such as the quantity of generated wastes and estimated chemical compositions of the waste streams and/or analyses. Gardner Denver stated that "these documents consist primarily of hazardous waste surveys, generator annual reports, waste product surveys, prequalification evaluations, waste oil disposal records, and material characterization sheets" (Mailing No. 1, p. 000005). Gardner Denver indicated that copies of these documents could be provided to the USEPA and NYSDEC upon request. The wastes that were processed, characterized, and disposed are summarized below.

- Wastes produced from the manufacture of conveyors and conveyor equipment included paint thinners, coolant oil, water, acidic cleaners, and used paint filters (Mailing No. 1, p. R5). Material Safety Data Sheets (MSDS) were submitted for paint thinners used in this process (Mailing No. 3, pp. 000489-000523). The MSDS provided in the documents reviewed included the following paint thinners: chem-prime H.S., lamson green water base enamel, off-white water base air dry enamel, ASA49 gray f/d enamel, ASA49 gray water base enamel, anti-corrosive gray water base primer, 041 No. 1 thinner, reducer (ST-154), and lacquer thinner. Used paint filters were transported to the Safety-Kleen facility in Texas for final disposal. All

pre-paint wastewater was discharged into the Onondaga County Department of Drainage and Sanitation (OCDDS) sewer system (Mailing No. 1, p. 000012). Specific disposal information associated with conveyor equipment was provided for the year 1980 (Mailing No. 1, p. R5). This information was obtained from a newspaper article titled, "Toxic Chemicals From Land to Water" in the Syracuse Post Standard dated September 15-18, 1980. The information summarized in this article was based on a NYSDEC 1976 survey. It was indicated in this article that Gardner Denver manufactured conveyors and conveying equipment. Waste produced from this process included 1,500 gallons of flammable paint thinner mixtures, coolant oil, water, acidic cleaners, and 1.5 tons of used paint filters. Gardner Denver states that paint filters were disposed at Recycling Labs, Inc. located in Canasota, NY.

- Air tube systems were manufactured at the Gardner Denver facility from 1922 until November 1986 (Mailing No. 1, p. 000003). Specific waste disposal procedures for the manufacture of air tube systems were not provided in the documents available for review, however, a report entitled "Industrial Discharges in the Ley Creek Sanitary District Onondaga Lake Watershed" (Roy F. Weston Environmental Engineers, March 1, 1969) described the volume of wastewater produced from the air tube system. Gardner Denver stated that the report indicates that 800 gallons per day (gpd) of industrial wastewater and 6,000 gpd of sanitary wastewater were discharged to the Ley Creek Sewage Treatment Plant from the manufacture of air tube systems (Mailing No. 1, p. R5).

- Blowers and exhausters were manufactured at this facility during the period 1978 through 1997 (Mailing No. 1, p. 000007; Mailing No. 3, p. 000416). Gardner Denver stated that "these processes and waste streams have remained constant, except for occasional changes in the waste transporter and/or waste disposal facility used for specific waste streams" (Mailing No. 1, p. 000005). Wastes produced from this

process operation included waste machine coolant and coolant sludge (Mailing No. 3, p. 000418). These wastes were stored in 55-gallon drums and disposed off-site at the Safety-Kleen facility in Syracuse, NY (Mailing No. 1, pp. 000008 and 000012).

- Electrical components were assembled but not manufactured at this facility (Mailing No. 1, p. 000007). Trichloroethane was used to clean the electronic components prior to assembly although information regarding collection and disposal of the spent trichloroethane was not provided in the documents reviewed (Mailing No. 3, p. 000418).

- Historical activities included the manufacture of refrigerator parts and machine gun mounts during the World War II period, however, Gardner Denver stated that specific process operations and waste disposal methods are not known for these products (Mailing No. 1, p. 000004).

- Painting of component parts occurred at the Gardner Denver facility. Wastes generated from this process operation included flammable solids and liquids from the cleaning of paint filters and paint equipment, paint-related liquid from the cleaning of painting guns, hazardous paint filters, hazardous solvent based paint waste, and hazardous water based paint waste. These wastes were disposed off site in 55-gallon drums at the Safety-Kleen facilities in Texas and New Jersey (Mailing No. 1, p. 000008). Pre-paint wastewater was disposed into the OCDDS system (Mailing No. 1, p. 000012).

- Parts washing consisted of cleaning of paint equipment and other process operation components. Several types of parts washers were used at the Gardner Denver facility. Degreasing of parts was conducted using "naptha type solvents" in cold cleaning tanks (Mailing No. 3, p. 000419). The "naptha type solvents" consisted of Safety-

Kleen Premium Solvent. Prior to 1982, methylene chloride was used in small amounts for parts washing (Mailing No. 3, p. 000418). Sodium hydroxide, which consisted of acidic and caustic rinses, was used in spray washers to clean metal parts. Enviroclean #110, an acidic cleaner, was used to periodically "remove scale from the wash tanks" (Mailing No. 3, p. 000418). MSDS were included in the documents reviewed for the Sodium Hydroxide Cleaner 422, Safety-Kleen Solvent, and the Enviroclean #110 (Mailing No. 3, p. 000426-000436). Waste cleaning chemicals and solvents used in the parts washing process were removed in 5-gallon cans by Safety-Kleen Corporation. Parts wash water was stored in 55-gallon drums pumped out by Safety-Kleen (Mailing No. 1, pp. 000011-000012).

- Wastes generated from the phosphatizing and printing processes included hazardous waste cleaning chemicals with fountain solution from the printing press, hazardous silver waste from the photographic developing processes, and hazardous ammonia waste generated from the blueprint machine. Both the printing press and the photographic wastes were disposed at Safety-Kleen in New Jersey and Massachusetts, respectively. The ammonia waste generated from the blueprinting process has never been disposed (Mailing No. 1, p. 000008). The table presented in Mailing No. 1 (p. 000008) indicates that the ammonia waste has been placed in a satellite accumulation area, however, details describing the precise location and exact years of generation and associated disposal were not included in the documents reviewed. Cleaning chemicals from the printing press operations and photographic process wastes containing silver were stored on-site in 30-gallon drums and subsequently transported to Safety-Kleen, Canton, MA (Mailing No. 1, p. 000011).

Hazardous wastes generated, periods of generation, quantities, and disposal locations for the period 1991 through 1997 were presented in Mailing No. 1 (p. 000008) and are summarized in Table 1 herein. Gardner Denver included a list of documents for each year in this period

that contain additional information regarding facility processes and waste streams (Mailing No. 1, pp. 000009-000010). These documents were not included in the materials submitted for review.

Table 1: Summary of Generated Wastes

Waste	Waste-Generating Process	Year	Volume	Disposal or Recycling Location
Flammable solid [1]	Cleaning of paint filters	1982-1990	110 lb/yr (1982) 1.2 tons/yr (1983-1990)	Not indicated in the documents reviewed
Flammable liquid[1]	Cleaning of paint equipment	1982-1990	None (1982-1985) 1.44 tons/yr (1986-1990)	Not indicated in the documents reviewed
Naphtha solvent[1]	Parts washing	1982-1990	None (1982-1983) 1.6tons/yr(1984-1985) None (1986-1987) 1 ton/yr (1988-1989) 0.4 ton/yr (1990)	Safety-Kleen Syracuse, New York
Paint-related liquid[1]	Cleaning of paint guns	1982-1990	413 gal/yr (1982-1983) None (1984-1988) 0.35 tons/yr (1989-1990)	Safety-Kleen Linden, New Jersey
Combustible liquid[1]	Production machinery	1982-1990	None (1982-1986) 0.5 tons/yr (1987-1988) 0.45 tons/yr (1989-1990)	Safety-Kleen Syracuse, NewYork
Waste oil/coolant[1]	Production machinery	1982-1990	550 gal/yr (1982-1983) 2.1 tons/yr (1984-1986) None (1987-1990)	Safety-Kleen Syracuse, New York
Sodium hydroxide[1]	Parts washing	1982-1990	None (1982-1983) 0.75 tons/yr (1984-1985) None (1986-1990)	Safety-Kleen Syracuse, New York
Methylene chloride[1]	Parts washing	1982-1990	165 gal/yr (1982) None (1983-1990)	Safety-Kleen Syracuse, New York
Hazardous waste ammonia	Blueprint	1991-1997	Not quantified in documents reviewed	Waste has never been disposed

Waste	Waste-Generating Process	Year	Volume	Disposal or Recycling Location
Naptha solvent [1]	Parts washing	1992-1997	864 lbs (1992) 114 gal/yr (1993-1995) 30 gal/yr (1996-1997)	OCDDS [2]
Flammable liquid [1] (a.k.a solvent waste)	Cleaning of paint equipment	1992-1997	165 gal/yr (1992-1993) 2,585 lbs/yr (1997)	Northeast Environmental Services Wamperville, NY
Flammable solid [1]	Cleaning of paint filters	1992-1997	1,200 lbs (1992) 3,354 lbs/yr (1994-1997)	Northeast Environmental Services Wamperville, NY
Paint -related liquid	Cleaning of paint equipment	1992-1997	702 lbs (1992) 2,410 lbs/yr (1993-1994) 7,330 lbs/yr (1995-1997)	Safety-Kleen Avon, NY
PCBs	Capacitors stored on-site	1994,1996	125 lbs (1994) 195 lbs (1996)	S.D. Myers, Inc. Tallmade, Ohio
Monosthanlamine cleaner	Parts washing	1995-1997	18 gal/yr (1995) 6 gal/yr (1996-1997)	OCDDS [2]

Sources: Mailing No. 1, p. 000008; pp. 000064-000305; Mailing No. 3, pp. 000437-000438.

Notes: 1) Volumes are presented as an average value over the indicated years.

2) OCDDS = Onondaga County Department of Drainage and Sanitation Sewer System.

A detailed discussion of waste disposal practices, organized by period of operation, is presented below.

Information regarding disposal of wastes prior to 1978 was limited to information from 1969 that were was provided by Gardner Denver for an industrial discharge to Ley Creek. These data were obtained from the report, "Industrial Discharges in the Ley Creek Sanitary District,

Onondaga Lake Watershed " (Roy F. Weston Environmental Engineers, March 1969). This report describes the volume of wastewater produced from the air tube system. The report states that 800 gpd of industrial wastewater and 6,000 gpd of sanitary wastewater were discharged to the Ley Creek treatment plant at this time from the manufacture of air tube systems. Additionally, during this time period, Gardner Denver concluded that the cooling system used emulsified oil to cool machines (lathes and grinders) and that the fabrication operation was a closed process. Spent oil from the cooling system was drummed and hauled to a disposal site. The location of the disposal site was not indicated in the documents available for review (Mailing No. 1, p. R4). The paint spray booths were equipped with a dry scrubbing system that collected particulates prior to emission to the atmosphere.

Specific disposal information associated with conveyor equipment was provided for the year 1976 (Mailing No. 1, p. R5). This information was obtained from a newspaper article titled, "Toxic Chemicals From Land to Water" in the Syracuse Post Standard dated September 15-18, 1980. The information summarized in this article was based on a NYSDEC survey conducted in 1976. It was indicated in this article that Gardner Denver manufactured conveyors and conveying equipment. Waste produced from this process in 1976 included 1,500 gallons of flammable paint thinner mixtures, coolant oil, water, and acidic cleaners, as well as1.5 tons of used paint filters. Gardner Denver states that paint filters were disposed at Recycling Labs, Inc. located in Canastota, NY.

Process operations and waste streams were presented in a facility survey provided in Mailing No. 1, p. 000011. This facility survey was not dated but Gardner Denver states that this survey appeared to have been prepared in the early 1980s. According to this document, process operations included "metal machining and fabrication (sawing, shearing, punching, drilling, forming, welding, grinding, lathing), casting, painting, parts washing, and the assembly of electrical components" (Mailing No. 1, p. 000011). Waste streams identified in this survey were waste machine coolant, coolant sludge, paint wastes (filters, chips, cans),

waste solvents, washer water, nitric acid, caustic rinse, degreasers, waste oil, general trash, and air emissions. Metal scrap was recycled and sold to Fulton Iron and Steel. Haz-O-Waste, Inc. transported coolant, paint, solvent, and oil wastes from the facility. Acidic and caustic wash water were disposed in the sanitary sewer system.

Gardner Denver provided information that described specific process operations and waste streams for the period 1978 through 1990. Gardner Denver stated that these documents do not present a comprehensive summary of all processes and waste streams but do provide a "snap-shot" of a particular process or waste stream. These documents were not provided in the documents available for review but could be provided by Gardner Denver upon request. Gardner Denver indicated in the facility's generator report for the period 1984 through 1990 that annual quantities of hazardous wastes ranged from 2 to 8 tons. There was no other information regarding waste disposal during this period provided in the documents available for review.

Specific information regarding disposal practices for the period 1991 through 1997 was presented in Mailing No. 1 (p. 000008) in table format and is summarized in Table 1 herein. Gardner Denver included a list of documents for each year in this period that contain additional information regarding facility processes and waste streams (Mailing No. 1, pp. 000009-000010). The supporting documents were not included in the materials submitted for review.

For the year 1992, Gardner Denver indicated that 1.9 tons of hazardous wastes were generated. Similarly, 1.9 tons of hazardous waste were generated in 1993 and 2.77 tons of hazardous waste were generated in 1994 (Mailing No. 1, pp. 000009-000010). Of the 2.77 tons of hazardous waste generated in 1994, Gardner Denver stated that this waste consisted of waste oil containing PCBs with concentrations less than 500 ppm, electrical capacitors, and light ballasts (B002 and B004 wastes). These wastes (waste oil, capacitors, and light

ballasts) were transported by S.D. Myers to Ohio for disposal at the S.D. Myers facility. For the year 1996, Gardner Denver indicated that 3.14 tons of hazardous waste were generated. Of the 3.14 tons, 430 pounds (0.22 tons) of waste were generated from the disposal of 22 electrical capacitors which contained PCB contaminated oil (B005). These capacitors were located inside at ceiling level near manufacturing machinery. The location was not specified by Gardner Denver, however, it was concluded from a 1990 capacitor and transformer inventory and building plan that the location of the capacitors was inside (Mailing No. 3, p. 000421). These capacitors were disposed off site by Hazmat Environmental Group at S.D. Myers facility located in Ohio (Mailing No. 1, pp. 000010-000011).

Gardner Denver provided documentation of three undated Haz-O-Waste Corporation waste product surveys which contain information regarding the following waste streams: Enviro Clean #110 Acidic Liquid Material, Prepare pH Control Agent, and JA06 Mold Release Agent (Mailing No. 1, p. 000011). These documents are available upon request from Gardner Denver and were not included in the documents available for review because they are not dated and can not be associated with disposal operations for a certain time period. Enviro Clean #110 Acidic Liquid Material was used as a solution in the aqueous-based parts washing operations to remove scale off the sides of the wash tanks (Mailing No. 3, p. 000418). In addition, Gardner Denver provided documentation of JA06 Mold Release Agent in Mailing No. 3 (p. 000418). It was stated that this agent was used in the casting process.

Specific waste disposal procedures for the manufacture of air tube systems, blowers and exhausters, and electrical components were not provided in the documents available for review. Gardner Denver concluded in Mailing No. 3 (p. 000418) that manufacturing process operations used for air tube systems and blowers and exhausters during the period 1978 through 1990 are consistent with those processes currently used at this site. The table presented by Gardner Denver in Mailing No. 1 (p. 000008) lists wastes disposed or recycled for the period 1991 through 1997. Within this list, Gardner Denver stated that non-hazardous

waste machine coolant and non-hazardous waste oil were generated from production machinery. Gardner Denver indicated in Mailing No. 2 (p. 000418) that waste machine coolant and coolant sludge were generated from the following machining operations: milling, drilling, grinding, lathing, sawing, shearing, and punching. In addition, Gardner Denver stated that non-hazardous steel scrap generated from the manufacturing process was recycled off site. Specific volumes of waste machine coolant, oil, coolant sludge, and steel scrap generated at this facility and disposed/recycled were not indicated in the table provided in Mailing No. 1 (p. 000008) or in the attachments submitted for review.

Gardner Denver stated that all general trash and recyclables were stored on site in 40 cubic yard (cy) compactors. Wood recyclables were stored on site in 30 cy roll-off containers (Mailing No. 1, p. 000011).

Facility Permits

Onondaga County Department of Drainage and Sanitation (OCDDS) permits were provided by Gardner Denver in the documents submitted for review for the following periods: August 11, 1993 through August 1, 1996; April 10, 1996 through April 10, 1999; and March 1, 1997 through March 1, 2000 (Mailing No. 1, pp. 000307-000404). These permits allowed for the discharge of sanitary wastewater, wastewater generated from the fabrication, machining and assembly of blowers and exhausters as well as wastewater generated from the phosphating prepaint cleaning operation regulated by the USEPA effluent guidelines and standards for metal finishing (40 CFR Part 433). Wastewater was discharged from the Gardner Denver facility into sewer No. 1 and sewer No. 2 that connected to the OCDDS system. Gardner Denver did not indicate the location of wastewater disposal prior to 1993. It was not indicated in the documents reviewed if OCDDS permits existed prior to 1993 or if a different disposal method was used for wastewater in years preceding 1993. There was no indication provided that process wastewaters were ever discharged directly to surface water (e.g., South Branch of Ley Creek).

Gardner Denver indicated that NYSDEC issued three certificates to operate air contamination sources at their facility (Mailing No. 1, p. 000013). However, Gardner Denver indicated in Mailing No. 3 (p. 000422) that NYSDEC air permits existed in 1980 for four paint booths, one blueprinting operation, one wax melting pot, and one lead melting pot. NYSDEC air permits for these process operations were provided in the documents reviewed in Mailing No. 3 (pp. 000524-000531). A New York State Industrial Process Emission Survey for the year 1990 documented the release of approximately 9 tons per year of emissions from paint thinner and the volatile portion of paints used in the spray booths (Mailing No. 3, pp. 000532-000540). A figure depicting the location of the permitted air emission sources was provided in Mailing No. 3 (p. 000541). Lastly, a volatile organic compounds (VOCs) emission report for the year 1997 was provided in the documents submitted for review (Mailing No. 3, p. 000542). This report was submitted in compliance with the special conditions listed in the air permits issued by NYSDEC and presented the total tonnage of VOCs emitted each month for the year 1997. Specific emission quantities are presented in Section 3.4.

3.0 POTENTIAL PATHWAYS FOR RELEASE OF HAZRDOUS SUBSTANCES TO THE LAKE SYSTEM

3.1 Soil

Soil at the Gardner Denver facility was contaminated directly from a Trim Sol discharge that occurred in October 1991. Stained soil was observed in the southeast corner of the facility during a site walk through. Gardner Denver stated that the "Trim Sol discharge is believed to have occurred over a period of time" (Mailing No. 1, p. 000012). This spill occurred from machines inside the facility and soaked through the concrete walls resulting in soil contamination beneath and adjacent to the building. The exact location of this spill was indicated on a diagram contained in Mailing No. 1 (p.000055), included herein as Figure 4. Following the discharge, soil excavation(shown on Figure 4), field screening, and laboratory analysis were performed. These activities are documented in reports prepared by International Exploration, Inc. ("INTEX") and C&S Engineers, Inc. ("C&S"). These reports were not included in the documents available for review.

Disposal of hazardous ammonia wastes may have resulted in on-site soil contamination. Gardner Denver did not provide information indicating the location of the satellite ammonia accumulation area, however, it was indicated that ammonia wastes have never been disposed (Mailing No. 1, p. 000008). It is possible that the satellite accumulation refers to drums or an enclosure where these wastes have been placed.

On-site storage of wastes and cleaning and conditioning products, spills, or leaks from waste storage or process operation areas, leaks from sewers and pipelines, and spills from routine maintenance activities may have resulted in soil contamination. These potential sources of contamination have been identified based on facility operation information, waste manifests, and notices of violations issued by OCDDS.

Soil data for this site were not included in the documents available for review however, Gardner Denver indicated that analytical results collected from soil borings completed in the location of the Trim Sol spill are available upon request (Mailing No. 1, p. 000013).

3.2 Surface Water

The Gardner Denver facility is located approximately 2,500 feet southwest of the South Branch of Ley Creek and 4 miles northeast of the eastern shore of Onondaga Lake, as shown on Figure 1. Stormwater runoff management practices were not indicated in the documents available for review. Gardner Denver did not explicitly state or identify locations where drums of waste or cleaning products have been stored. It has been inferred that drums containing wastes or cleaning products were stored on site during facility operations until they were transported off site for recycling or disposal. Spills and leaks of materials from on-site drum storage areas and unpermitted releases from process operations are potential sources of contamination to off-site surface waters. Surface contours indicate that runoff would most likely flow northeast of the Gardner Denver site towards the Conrail railroad tracks and eventually to the South Branch of Ley Creek. Documented discharges, spills, and leaks are discussed in Sections 4.1 and 4.2.1. The site is bordered by a paved roadway adjacent to the south (Tyson Place) and railroad tracks to the north. It was not indicated whether there are roadway or railway stormwater management structures (e.g., drainage ditches, swales, catch basins) in place along the site property boundaries. It was noted by Gardner Denver that two manholes existed on site outside the manufacturing buildings. These manholes were identified in Mailing No. 1 (p. 000408).

3.3 Groundwater

Groundwater at the Gardner Denver facility can be impacted directly by leaching of chemicals from manufacturing, storage, and processing areas or from deteriorated sanitary sewers throughout the site, or from spills originating in processing, waste storage and

handling areas. The on-site sewer connection between the manufacturing buildings and the OCDDS sewer system was not indicated in the materials available for review. This location has been identified as a potential source of groundwater contamination. No groundwater data were provided for this site in the documents available for review. It was not indicated in the material provided for review whether monitoring wells were installed on site following the Trim-Sol discharge.

3.4 Air

Air emissions represent a local source of contaminants to the atmosphere with potential deposition to the ground surface and subsequent transport to Onondaga Lake via surface water runoff. There were seven emission points discussed in the Gardner Denver mailings, all of which were permitted by NYSDEC (Mailing No. 3, pp. 000525-000531). These emission points are not explicitly labeled on the facility map provided in Mailing No. 3 (p. 000541), however, the process operations that generate these emissions are labeled on this facility map. In addition, Gardner Denver included a 1990 Industrial Process Emission Survey for review. This survey summarized total air emissions for paint thinners, nitrogen oxides, VOCs, and carbon monoxide. A 1997 VOC emission report was also submitted for review. This report was prepared in compliance with the NYSDEC air quality permits for this facility.

The NYSDEC air renewal permits provided in the documents reviewed allowed emissions from the following process operations: exhauster for the wax melting pot, exhauster for the lead melting pot, paint spray booth, and the photocopying process. Particulates were released from the wax melting pot exhauster at a rate of 0.001 lbs/hr, from the lead melting pot exhauster at a rate of 0.030 lbs/hr, and from the paint spray booth at a rate of 0.120 lbs/hr. Paint thinner was released from the paint spray booth at a rate of 5.20 lbs/hr. A second emission point located in the paint spray booth operation released 2.60 lbs/hr of paint thinners and 0.060 lbs/hr of particulates. The air permit for the photocopying process

indicated the emission of ammonia at a rate of 0.080 lbs/hr (Mailing No. 3, pp. 000525-000531).

Gardner Denver provided the 1990 Industrial Process Emission Survey for review (Mailing No. 3, pp. 000532-000540). The letter attached to this report indicated that facility operations at Gardner Denver for this period consisted of the manufacture of industrial and commercial fans and blowers and air purification equipment (Mailing No. 3, p. 000532). The manufacture of conveyors and conveyor equipment was terminated at this time. This report described paint thinner, nitrous oxide, VOCs, and carbon monoxide emissions for 1990. Gardner Denver indicated that 18,387 lbs/yr of paint thinners were emitted, 116 lbs/yr of nitrous oxide, 9.3 lbs/yr of VOCs; and 23 lbs/yr of carbon monoxide were emitted during 1990 (Mailing No. 3, pp. 000537-000540).

A VOC emission report for 1997 was provided in the documents reviewed (Mailing No. 3, p. 000542). This report was submitted in compliance with the special conditions listed in the air permits issued by NYSDEC and presented the total tonnage of VOCs emitted each month 1997. According to this report, VOC emissions were greatest during the month of April (1.12 tons per year) (Mailing No. 3, p. 000543). The total VOC emission for 1997 was indicated to be 5.61 tons.

3.5 County Sewer System

Gardner Denver discharged industrial and sanitary wastewater to the OCDDS sanitary sewer system pursuant to pre-treatment requirements, which were not applicable, as stated by Gardner Denver (Mailing No. 1, p. 000014), established by the OCDDS permits. Sanitary and industrial wastewater have been conveyed from the facility through sewer No. 1 and sewer No. 2. The following types of wastewater have been discharged into the sanitary sewer from Gardner Denver: sanitary wastewater; process wastewater generated from the fabrication, machining and assembly of blowers and exhausters; and wastewater generated

from the phosphating prepaint cleaning operation. As noted in Section 2.3, OCDDS Industrial Wastewater Discharge Permits were provided for the period 1993 through 2000. OCDDS permits were not provided for years of operation prior to 1993 but it is believed that process wastewaters were also discharged prior to 1993. Gardner Denver did not indicate in the documents available for review if OCDDS permits existed for years prior to 1993 but it is believed that process wastewaters were also discharged prior to 1993.

During the period 1993 to 1996, sewer No. 1 was used to convey both sanitary wastewater and process wastewater from the fabrication, machining and assembly of blowers and exhausters to the OCDDS system. For the period 1996 through 2000, sewer No. 1 was used to convey sanitary wastewater and sewer No. 2 conveyed process wastewater from fabrication, machining, and assembly of blowers and exhausters as well as wastewater from the phosphating prepaint cleaning operation to the OCDDS system.

The OCDDS permit issued for the period 1993 through 1996 allowed for discharge of sanitary and process wastewater through sewer No. 1 into the OCDDS system with no discharge limitations. This permit allowed Gardner Denver to exceed emission standards for 5-day biochemical oxygen demand (BOD_5), total suspended solids (TSS), total phosphorous (TP), and total Kjeldahl nitrogen (TKN) (Mailing No. 1, p. 000312). This discharge was treated at the publicly owned treatment works (POTW).

The OCDDS permit issued for the period 1996 through 1999 included discharge limitations for both sewer No. 1 and sewer No. 2. Sewer No. 1 effluent, which consisted of sanitary wastewater discharge, had to satisfy discharge limitations for heavy metals (cadmium, chromium, hexavalent chromium, copper, cyanide, lead, mercury, nickel, silver, and zinc), total oil and grease (O&G), pH, and temperature (Mailing No. 1, pp. 000341-000342). Discharge limitations were set for both daily allowable concentrations and instantaneous allowable concentrations. In addition, Gardner Denver was permitted to exceed typical effluent criteria for BOD_5, TSS, TP, and TKN because these constituents were treated at the

POTW. Sewer No. 2 effluent, which consisted of process wastewater from the fabrication, machining, and assembly of blowers and exhausters as well as phosphating prepaint cleaning operation wastewater had to comply with the effluent limitations metals finishing pretreatment standards for new sources (Mailing No. 1, p. 000343). Parameters included total cadmium (Cd), total chromium (Cr), total copper (Cu), total lead (Pb), total nickel (Ni), total silver (Ag), total zinc (Zn), total cyanide (T-CN), and total toxic organics. Discharge limitations were set for both daily maximum and maximum 30-day average concentrations. Self-monitoring and reporting requirements were set for both sewers. Gardner Denver was expected to sample their effluent discharges on a set schedule and submit the reports to the OCDDS pursuant to requirements set forth in this permit. Results of effluent sampling, if performed, were not provided by Gardner Denver in the documents available for review.

The OCDDS permit issued for the period 1997 through 2000 allowed the discharge of sanitary wastewater into sewer No. 1 and process wastewater generated from the fabrication, machining, and assembly of blowers and exhausters as well as phosphating prepaint cleaning operation wastewater into sewer No. 2. Effluent limitations set for both sewer No.1 and sewer No. 2 in this permit were consistent with those stated above for the period 1996 through 1999. Results of effluent sampling for the period 1997 through 2000 were not available in the documents submitted for review (Mailing No. 1, pp. 000374-000406).

It is likely that some stormwater runoff on site drained into the two manholes located outside the manufacturing operations building as shown on an industrial site plan provided in Mailing No. 1 (p. 000408). This industrial site plan is contained herein as Figure 3. No specific information regarding stormwater quality or stormwater runoff management at the Gardner Denver facility was provided in the documents available for review.

4.0 LIKELIHOOD OF RELEASE OF HAZARDOUS SUBSTANCES TO THE LAKE SYSTEM

4.1 Documented Releases

Documented Spills

Gardner Denver indicated that a spill of Trim Sol, a water-miscible cutting fluid, occurred in 1991 (Mailing No. 1, p. 000012). In addition, Gardner Denver indicated that an accidental discharge of a 12% concentration chemical cleaner (DMM-37) was discharged into the sanitary sewer "although Gardner Denver does not believe it would qualify as a 'discharge' to the environment" (Mailing No. 1, p. 000013). Gardner Denver indicated that "there is no evidence that the 'discharges to the environment' associated with either the Trim Sol or the facility's air emission points have entered directly or indirectly into Onondaga Lake or its tributaries" (Mailing No. 1, p. 000014).

There were 22 capacitors stored in buildings on site; all of which contained PCB oil. These capacitors were removed in 1996 and the PCB contaminated oil was disposed off site. Gardner Denver indicated that there are no records which exist in their files indicating that any leaks or releases of PCB oil ever occurred at their facility (Mailing No. 3, p. 000421). It was noted that "Gardner Denver is unaware of any other contamination associated with this facility, and can provide no additional responsive information" (Mailing No. 1, p. 000014). Although Gardner Denver did not indicate any other spills in the documents available for review, it is possible that spills could have resulted from on-site storage and handling of chemicals and/or wastes as well as from the satellite ammonia storage area. Other documented releases include permitted emissions into the atmosphere and permitted wastewater discharges into the sewer.

Ongoing/Recent Releases

There were no ongoing releases indicated in the documents available for review other than permitted releases into the atmosphere and into the OCDDS sewer system. Gardner Denver indicated that hazardous ammonia waste from the blueprinting operation has never been disposed and is located in a satellite accumulation area (Mailing No. 1, p. 000008). The precise location and nature of the ammonia wastes were not indicated in the documents available for review. Gardner Denver indicated that there were three violations of the OCDDS permit which occurred in 1994,1997, and 1998 (discussed below). Gardner Denver stated that "manufacturing operations at the facility will terminate in 1998," however, it was not indicated whether facility operations were terminated at this time (Mailing No. 1, p. 000003). If facility operations are still occurring at the present time, releases from this facility would most likely continue to consist of sanitary and process wastewater discharged into the OCDDS sewer system and industrial and hazardous wastes disposed at off-site facilities as previously discussed in Section 2.3.

Gardner Denver provided a letter dated July 15, 1994 describing an accidental discharge that occurred into the OCDDS system on July 13, 1994 (Mailing No. 3, pp. 000546-000547). This discharge consisted of 100 to 125 gallons of wastewater containing 12% concentration of DMM-37. This discharge also contained a small percentage of oil from parts that were being cleaned in the parts washer tank (Mailing No. 1, p. 000013). Gardner Denver provided the MSDS for DMM-37 in Mailing No. 3 (p. 000545). The MSDS for DMM-37 indicated that this chemical is a degreaser and contains hazardous monoethanol amine. The other components of this chemical material consist of water, surfactants, corrosion inhibitors, water softner, non-silicone, non-toxic defoamer, and dye. The letter submitted to OCDDS indicated that the discharge was a result of employee error. An employee accidentally emptied the contents of the parts washer tank into the sanitary sewer. Gardner Denver documented that this discharge lasted for a period of 15 minutes. As a result of this discharge, Gardner Denver disconnected the electricity which lead to the pump that allowed

water in the tank to flow into the sanitary sewer. In addition, Gardner Denver proposed the implementation of locked valve guards on all shut-off valves on each part washer that leads to the sanitary sewer system. Implementation of these locked valve guards was expected to be completed by August 1, 1994 (Mailing No. 1, pp. 000013 and 000014). It was not indicated in the documents available for review whether a notice of violation (NOV) was issued for this release.

Two NOVs of the OCDDS wastewater discharge permit were provided by Gardner Denver for the period 1997 and 1998. OCDDS issued a NOV dated July 31, 1997 which indicated that sewer No. 2 exceeded the monthly permit limit for zinc on April 1, 1997 (Mailing No. 1, p. 000016). The detected concentration of 2.32 mg/L exceeded the permit limit of 1.48 mg/L (Mailing No. 1, p. 000414). Follow-up sampling was conducted at the time of the exceedance and there were no additional violations detected during this period. The OCDDS NOV letter indicates that "no further action is required at this time" since the follow-up sampling did not indicate additional zinc exceedances. Gardner Denver indicated that a copy of this NOV was provided in the documents attached to their response, however, this NOV dated July 31, 1997 was not included in the documents submitted for review.

On February 23, 1998, Gardner Denver received a NOV for a January 28, 1998 exceedance of zinc at sewer No. 2. Sampling at this sewer detected a zinc concentration of 4.24 mg/L (permitted daily maximum limitation of 2.61 mg/L) (Mailing No. 3, p. 000549). It was noted that "Since only one sample [was] collected during the month of January, the 1/28/98 sample caused both a violation of the daily maximum limit and the monthly average limit [1.48 mg/L] for zinc" (Mailing No. 3, p. 000549). Pursuant to this exceedance, OCDDS required Gardner Denver to sample and analyze wastewater from sewer No. 2 for zinc on four consecutive days typical of normal production. Gardner Denver conducted the required sampling from February 24, 1998 through February 27, 1998. Sampling showed zinc concentrations to be less than 2.61 mg/L (daily average limit) and 1.48 mg/L (monthly average limit) (Mailing No. 3, pp. 000557-000559).

Following issuance of this NOV, Gardner Denver conducted a full investigation to determine the cause of the zinc exceedances. Gardner Denver tested all chemicals used in the operations that discharged into sewer No. 2. The chemical, Man-Gill Magnukleen 215-D, was found to contain zinc at a concentration of 6.7 mg/L. Test wipes of dust collecting on manufacturing parts in the booth were also sampled for zinc. Dust samples collected from the blower exhibited a zinc concentration of 3.0 mg/L. Following the results of the full investigation, Gardner Denver replaced the cleaner Man-Gill Magnukleen 215-D with Dubois C-1102 which is known to contain only 0.32 mg/L of zinc. Secondly, Gardner Denver implemented a new company policy requiring all units to be "blown off" prior to being moved into the pre-wash booth to eliminate contamination of dust containing zinc into wastewater in sewer No. 2. Gardner Denver also implemented weekly sampling of their wastewater with a Hach Company pocket colorimeter.

4.2 Threat of Release to the Lake System

4.2.1 Extent of Site Contamination

Documents submitted for review in all three mailings suggest that the potential for site contamination exists as a result of the Trim Sol spill in the manufacturing area, storage of hazardous waste ammonia in the satellite accumulation area, and from elevated levels of zinc wastewater discharge at sewer No. 2. These sources of contamination may have resulted in soil, groundwater, and surface water contamination. Gardner Denver did not provide analytical sampling results from soil borings collected in the area of the Trim Sol spill nor any groundwater and surface water data. Sampling results were submitted for the period following the issuance of the February 28, 1998 NOV which indicated that zinc concentrations in Gardner Denver's effluent exceeded both the daily maximum and monthly average limitations for the month of January 1998. Although no data were submitted by Gardner Denver for the sampling of soil, surface water or groundwater on-site, a discussion

of possible soil, groundwater, sanitary sewer, and surface water contamination is provided below.

Soil

Trim Sol was used by Gardner Denver as a coolant in their manufacturing processes. More specifically, Trim Sol was "used to cool cutting tools during the removal of metal stock during machining operations" (Mailing No. 3, p. 000422). The material safety data sheet provided in Mailing No. 3 (p. 000424) indicated that Trim Sol is classified as a soluble oil and contains 40% petroleum oil, 30% petroleum sulfonate, 20% chlorinated alkene polymer, and 1% of the following: nonionic surfactant, aromatic alcohol, propylene glycol ether, propylene glycol, substituted indole, blue-green dye, defoamer, and water.

In October 1991, stained soil was observed outside the south-southeast corner of the facility. It was determined that the stained soil was a result of a spill of Trim Sol (Mailing No. 1, p. 000012). Gardner Denver indicated that this spill most likely occurred from machines within the facility and soaked through the concrete wall resulting in the stained soil outside the building. It was noted that "No estimate of the quantity of Trim Sol released was identified in available records" (Mailing No. 3, p. 000422). A figure indicating the location of the spill was provided by Gardner Denver in Mailing No. 3 (p. 000488), however, this figure was not drawn to scale and as a result the area of soil contamination was unable to be computed and identified. In addition, a figure was provided in Mailing No. 1 (p. 000055), included as Figure 4 herein, showing the location of the Trim Sol contaminated soil in relation to the facility and the location of the staged excavated soil piles in relation to on-site manholes and a culvert pipe. This figure indicates that the excavated soil was placed into two piles for staging prior to disposal. A comparison of this figure with the site plan provided by Gardner Denver in Mailing No. 1 (p. 000053) indicates that the piles were located in the paved parking lot. Both the manhole and the culvert pipe were located slightly southeast of the

piles. This figure is not drawn to scale; thus, the distance from the manhole and culvert pipe to the staging area could not be determined.

Gardner Denver stated that "following the discharge, extensive soil excavation, field screening and laboratory analysis occurred" (Mailing No. 1, p. 000013). The figure provided in Mailing No. 3 (p. 000483) which shows the location of the Trim Sol contaminated soil includes a note that states that "test pit excavations were made by Parratt-Wolff Inc. on November 19,1992" (Mailing No. 3, p. 000483). This note indicates that the Trim Sol contaminated soil was excavated one year and one month following the initial spill. Mitigation measures implemented during this period to prevent further contamination were not indicated in the documents available for review. Documentation of soil excavation activities and associated analytical sampling results were not provided in the documents reviewed, however, Gardner Denver indicated citations to reports that provide this information and stated that "Gardner Denver will provide copies of these reports to USEPA / NYSDEC upon request" (Mailing No. 1, p. 000013).

Gardner Denver indicated that NYSDEC concluded that "no further remediation or investigation is required nor contemplated" (Mailing No. 1, p. 000013). This decision was indicated by NYSDEC in a letter, dated September 12, 1995 (Mailing No. 3, p. 000056). This letter states that a supplemental soil investigation was completed in the area of the excavation on September 30, 1993, one year following excavation of the contaminated soil. This letter indicates that the two soil borings completed on September 30, 1993 contained both naphthalene and acenaphthene in exceedance of limits in NYSDEC petroleum contaminated soil policy STARS memo #1. However, it was indicated by NYSDEC that "given the location of the site and current use of the facility, no further remediation or investigation is required nor contemplated" (Mailing No. 1, p. 000056).

Hazardous Ammonia Waste

Hazardous ammonia waste was generated from the blueprinting process at the Gardner Denver facility. It was indicated on a table provided by Gardner Denver in Mailing No. 1 (p. 000008) that this waste stream has never been disposed and is contained in a satellite accumulation area. The location of the satellite accumulation area was not indicated in the documents available for review. It is unknown if the satellite accumulation area consists of storage in drums inside or outside the facility or if this area is located in a contained area off site. Gardner Denver did not provide information indicating the quantities of ammonia waste produced or the period of operation that this waste was generated. It is possible that ammonia waste could have been a source of contamination depending on the method of storage.

Groundwater

Based on the information that was available for review, it is believed that groundwater sampling has not been conducted at the Gardner Denver facility. Potential sources of groundwater contamination include the Trim Sol contaminated soil area and potential ammonia releases from the satellite accumulation area. In addition, groundwater contamination could have resulted from leaks in the sanitary sewer pipes or from spills occurring in manufacturing or storage areas. Information on the depth to groundwater was not included in the documents that were available for review.

Sanitary Sewer

As stated in Section 2.3, sanitary and industrial wastewater generated from process operations were discharged into the OCDDS sewer system. Gardner Denver did not provide sewer sampling data at either sewer No. 1 or sewer No. 2, however, an accidental discharge containing a parts washing chemical and two NOVs were incurred due to elevated zinc

concentrations in their effluent at sewer No. 2. These incidents were discussed in Section 4.1.

According to the OCDDS permits issued to Gardner Denver, self-monitoring reports were expected to be maintained and submitted to OCDDS. These reports and the associated effluent sampling data were not included in the documents available for review. It can be assumed that since there were no NOVs issued other than the ones cited above, sampling results contained within the self-monitoring reports would have been in compliance with the effluent limitations. In addition, it is not known if OCDDS permits existed prior to 1993 or if Gardner Denver discharged process wastewater into the sanitary sewer without effluent limitations. Since the facility operations have remained consistent over all years of operation, it can be concluded that waste streams, and more specifically constituents present in the process wastewater, have not changed substantially during years of operation.

Gardner Denver provided documentation in Mailing No. 1 (p. 000004) that an on-site sewage disposal plant existed at some point between 1920 and 1965. Gardner Denver was unable to obtain information depicting operations conducted at this plant. It is possible that this plant was used to treat both sanitary and process wastewater prior to discharge into the South Branch of Ley Creek or into the OCDDS sewer system. Depending on treatment methods used at this facility and if overflow of effluent ever occurred, it is possible that either the OCDDS system or the South Branch of Ley Creek may have been contaminated at one time or another. Documentation regarding operations at this plant would be needed to assess this potential source of contamination.

Surface Water

Spills or leaks at the various chemical and waste storage areas or from surface runoff that could have resulted during and after the Trim Sol spill could have impacted off-site surface waters. The South Branch of Ley Creek is located approximately 2,500 feet northeast of the

Gardner Denver facility. Gardner Denver stated that "the facility has no permit applications, or permits issued under the Refuse Act Permit Program, National Pollutant Discharge Elimination System [NPDES], or State Pollutant Discharge Elimination System [SPDES]" (Mailing No. 1, p. 000016). Gardner Denver did not provide information indicating the general direction of stormwater runoff on the site. As noted in Section 1.4, surface contours on the USGS topographic map depict surface water from the Gardner Denver site to likely flow to the northeast towards the Conrail railroad tracks and the South Branch of Ley Creek (see Figure 2). It was noted that "there is no evidence that the 'discharge to the environment'" associated with either the Trim Sol spills or the facility's air emission points have entered directly or indirectly into Onondaga Lake or its tributaries" (Mailing No. 1, p. 000014). In addition, Gardner Denver stated that "there is not a direct discharge at this facility and there is no pretreatment which occurs at the facility" (Mailing No. 1, p. 000014).

4.2.2 Migration Potential of Contaminants

The potential contaminants of concern at the Gardner Denver facility include zinc which was discharged at elevated concentrations into the sanitary sewer from process operations constituents of the Trim Sol coolant used for cooling cutting tools during metal operations, and waste ammonia from the satellite disposal area. There were two NOVs issued due to exceedances of zinc limitations in Gardner Denver's effluent at sewer No. 2. These NOVs were issued in 1997 and 1998. Gardner Denver did not indicate the cause of the zinc exceedance in the 1997 NOV, however, Gardner Denver stated that zinc was present at elevated levels in 1998 due to the use of the chemical Man-Gill Magnukleen 215-D, which was found to contain zinc at a concentration of 6.7 mg/L. In addition, it was determined that the collection of dust on manufacturing parts contains a zinc concentration of 3.0 mg/L. Following this determination in 1998, the chemical Man-Gill Magnukleen 215-D was replaced and a new company policy was implemented that required all units to be "blown off" prior to being moved into the pre-wash booth to eliminate contamination of dust containing zinc into wastewater and subsequently into sewer No. 2.

The Trim Sol spill which resulted in contaminated soil outside the facility could have caused groundwater contamination or potentially off-site surface water contamination. This spill was detected due to stained soil in 1992, however, the soil was not excavated until one year and one month later. Gardner Denver did not indicate if any mitigation measures were taken to enclose this area to prevent further contamination at other locations.

Gardner Denver did not describe any methods of containment or diversion of surface water runoff in the documents reviewed. It is possible that spills or leaks associated with on-site drum storage and process operations could have resulted in contaminant migration via groundwater or surface water runoff. Likewise, ammonia, if stored on site, could have resulted in contaminant migration via groundwater or surface water runoff. It is also possible that contaminants could have migrated off-site from air transport and deposition. Environmental analytical data (soil, groundwater, surface water) were not provided by Gardner Denver in the documents reviewed.

5.0 POTENTIAL FOR ADVERSE IMPACTS TO LAKE SYSTEM DUE TO A RELEASE OR THREAT OF A RELEASE

5.1 Hazardous Substance Characteristics

Based on information provided by Gardner Denver, the potential contaminants of concern which have been identified are zinc, the constituents of Trim Sol metal cooling fluid, and ammonia. The sources of contamination identified at the Gardner Denver site are process wastewater and a coolant spill that occurred in the manufacturing operations building. Contamination may have also resulted from undocumented spills, leaking of drums containing waste or cleaning products, or leaks from on-site sewer pipes.

A discussion of hazardous substance characteristics for the potential contaminants of concern, including zinc, Trim Sol, and ammonia, is provided below.

Mobility

Zinc has been classified as one of the most mobile of the heavy metals. This is because compounds of zinc with the common ligands of surface waters are soluble in neutral and acidic solutions. Zinc forms many soluble compounds with organic and inorganic ligands and tends to adsorb to clay minerals, organic matter and hydrous oxides. This implies that sediment transport is an important fate process for these compounds. There is no evidence suggesting that photolysis of zinc compounds in aquatic environments has an effect on its fate. Precipitation of zinc compounds is important only in reducing environments or heavily polluted environments. Consequently, the mobility of zinc in aquatic environments is controlled by the speciation of the ion (USEPA, 1979).

Trim Sol is 100% water soluble according to the MSDS provided for review in Mailing No. 3 (p. 000424). It was indicated that Trim Sol is a dark green, viscous liquid with a mild,

pleasant odor. The MSDS suggests that Trim Sol is a viscous liquid, indicating that it most likely has a slow mobility rate.

In general, ammonia does not last very long in the environment because it is recycled naturally. In soil or water, plants and microorganisms rapidly take up ammonia.

Toxicity

The toxicity of zinc in the environment is directly impacted by calcium concentrations in the environment. Zinc toxicity is inversely related to calcium concentrations. Thus, toxicity of zinc decreases with increasing calcium concentrations (USEPA, 1979).

Trim Sol is incompatible with strong oxiders, acids and alkalines. The MSDS suggests that the Trim Sol fluid should not come in contact with these substances. The presence of fire may cause Trim Sol to generate carbon monoxide, carbon dioxide, hydrochloric acid, and sulfur dioxide. In the event of a spill, Trim Sol should be cleaned up using mops and/or dry absorbents. The only safety measure to be taken by personnel working with Trim Sol fluid is eye protection with the use of safety glasses.

Ammonia does not meet the toxicity criteria under CERCLA, Section 302, however, because of its high production volume and recognized toxicity it is considered a chemical of concern.

Persistence

Zinc tends to have a moderately low persistence in the environment. This is because zinc tends to be sorbed by hydrous metal oxides, clay minerals and organic materials in the environment. Zinc concentrations tend to be greater in sediment than they are in the water column. Water bodies containing a pH level greater than 7 tend to completely sorb all zinc

concentrations whereas in water bodies with a pH below 6, little to no sorption of zinc concentrations occurs (USEPA, 1979).

Trim Sol is not expected to be persistent in the environment due to its high solubility in water (100% soluble).

Ammonia occurs naturally in the environment and is commonly be found in large bodies of water at a concentration less than 6 ppm and in the soil at a range of 1 to 5 ppm. As stated above, ammonia does not persist in the environment because it is recycled naturally.

Bioaccumulation

Zinc is capable of being bioaccumulated by all organisms. This is due to the fact that zinc is an essential nutrient. Both marine and freshwater fish accumulate zinc through consumption of food and water (USEPA, 1979).

Trim Sol is not known to bioaccumulate in any organisms.

In soil or water, plants and miroorganisms rapidly take up ammonia. Based on available data, it is not certain whether or not ammonia causes cancer or birth defects. The USEPA has determined that the level of ammonia in lakes and streams that might cause health effects from drinking water or eating fish contaminated with ammonia depends on the pH and the temperature of the water. Typical pH of spent un-diluted ammonia is between 11 and 12, which is potentially toxic to marine life (ATSDR, December 1990).

5.2 Quantity of Substances

Estimates of the quantities of hazardous and non-hazardous wastes disposed off-site are presented in Section 2.3 and Table 1. Zinc, which was a by-product of manufacturing operations, was identified as a potential contaminant of concern due to its exceedances of OCDDS limitations. Two NOVs were issued by OCDDS due to elevated levels of zinc in their effluent.

OCDDS issued a NOV in 1997 for a zinc exceedance in Gardner Denver's process wastewater, however, this NOV was not included in the documents available for review. Gardner Denver did include a copy of the NOV issued in 1998. This NOV indicated that zinc was detected during the month of January 1998 at a concentration of 4.24 mg/L (Mailing No. 3, p. 000549). The quantity of process wastewater discharged into sewer No. 2 at this time was not included in the documents available for review. Using the flow value reported for 1983 (22,700 gpd, Mailing No. 1, p. R5) and this elevated concentration of 4.24 mg/L, an estimate of the loading of zinc is approximately 1 pound per day.

The quantity of Trim Sol spilled during manufacturing operations was not known by Gardner Denver. In addition, figures provided in both Mailing No. 1 and Mailing No.3 which show the location of the Trim Sol contaminated soil area, were not drawn to scale. It was not possible to determine the quantity of Trim Sol spilled or the area of soil which was contaminated. Gardner Denver did not specify the volume of soil that was excavated.

There are no specific USEPA categorical limits for the disposal of ammonia associated with blueprinting, as used at Gardner Denver. However, as of 1991, any release to the environment greater than 100 pounds of ammonia must be reported to the USEPA. Some commonly practiced, yet questionable disposal techniques for waste ammonia, include dilution before flushing it down the sanitary sewer and neutralizing with an acid followed

by sewer disposal. However, Gardner Denver indicated that they have not discharged ammonia to the environment.

Based on data provided an Industrial Chemical Survey response completed for the year 1983, Gardner Denver discharged 22,700 gpd of process and sanitary wastewater to the sanitary sewer without pre-treatment. According to the Industrial Chemical Survey completed for this period, Gardner Denver used and disposed on an annual basis the following: 500 gallons of toluene; 500 gallons of xylene; 200 gallons of 1,1,1- trichloroethane; 100 gallons of methylene chloride; and 100 gallons of dichloroethylene. It was stated that no pre-treatment was required for the discharges to the sewer system (Mailing No. 1, p. R5).

Quantities of particulates released to the environment via air emissions are documented in Section 3.4.

5.3 Levels of Contaminants

Elevated concentrations of zinc were detected during routine sewer sampling conducted at sewer No. 2 in 1997 and 1998. Gardner Denver received two NOVs due to the presence of zinc in process wastewater at concentrations that exceeded the OCDDS limit. These data were presented in Sections 4.1 and 5.2. Analytical data were not available in the documents reviewed in reference to the Trim Sol spill that occurred in 1991. Information available in regards to this event was presented in Section 4.1.

Analytical data from on-site soils, groundwater, and surface water were not included in the documents reviewed.

5.4 Impacts on Special Status Areas

The Gardner Denver facility is not situated in an area where direct adverse impacts to regulated wetlands or protected streams would likely occur. The South Branch of Ley Creek, located approximately 2,500 feet northeast of the site, is a Class C water body and is not considered a "protected stream" in this area.

According to the Syracuse East National Wetlands Inventory map (USDOI, 1981), a federal wetland exists approximately 2,000 ft northeast of the Gardner Denver facility and is designated as PFO1A (Palustrine, Forested, Broad Leaved Deciduous, Temporary). Based on the New York State Freshwater Wetlands map, Syracuse East quadrangle, this area appears to coincide with New York State wetland SYE 29, which exists approximately 2,250 ft northeast of the Gardner Denver facility. A second federal wetland, designated as PEM1A (Palustrine, Emergent, Persistent, Temporary), is located approximately 4,300 ft south-southeast of Gardner Denver. This wetland is south of I-690. It is unlikely that these wetlands have been impacted by the Gardner Denver facility via surface water runoff.

As of August 1996, there are no New York State "Natural Heritage Sensitive Elements" located within a one-mile radius of the Gardner Denver facility.

6.0 SUMMARY OF CONCERNS

Based on the data and information provided by Gardner Denver, the following concerns have been identified:

- Zinc was identified as a potential contaminant of concern in process wastewater discharged to the sewer due to elevated concentrations detected during OCDDS sampling. NOVs were issued in 1997 and 1998 due to zinc concentrations exceeding OCDDS limitations. Following the issuance of the 1998 NOV, Gardner Denver discontinued use of Man-Gill Magnukleen 215 D and a new company policy was implemented in the parts washing operations room. It is not known if elevated zinc concentrations were discharged into the OCDDS sewer system at other times since Gardner Denver was not required to conduct daily sampling of their effluent. It is possible that zinc may have frequently entered the OCDDS system at elevated levels prior to 1998.

- Trim Sol, a coolant used in manufacturing operations, was identified as a contaminant of concern due to a spill that occurred in 1991 inside the manufacturing operations building that soaked through building walls resulting in soil contamination at the Gardner Denver facility. The exact quantity of material spilled and the size of the contaminated area were not included for review. Soil was excavated from this area and placed in staging piles in the facility parking lot. Specific analytical results at the time of excavation and the location of the disposal facility were not indicated in the documents reviewed. In addition, soil samples collected from this area in 1993 (one year following the soil excavation) contained both naphthalene and acenaphthene in exceedance of NYSDEC petroleum contaminated soil limitations. Mitigation measures implemented prior to soil excavation were not indicated in the documents available for review. It is possible that the Trim Sol spill could have resulted in groundwater or surface water contamination.

- Gardner Denver did not provide any information regarding the location and characters of the satellite accumulation area used to store hazardous ammonia waste. It was indicated in the documents reviewed that "ammonia waste has never been disposed" (Mailing No. 1, p. 000008). It is possible that this waste could have been placed in drums located on site or within an enclosed building. Leaks from this area could have resulted in soil, groundwater, and off-site surface water contamination.

- A description of hazardous material and waste storage and handling operations was not provided for current or past years of operation. Storage area characteristics and off-site runoff prevention measures were not discussed in the documents reviewed. The extent of spills that occurred historically on site is not known.

- Gardner Denver provided documentation in Mailing No. 1 (p. 000004) that an on-site sewage disposal plant existed at some point between 1920 and 1965. It is not known if this plant treated both process and sanitary wastewater and then discharged treated effluent into the OCDDS system or directly into the South Branch of Ley Creek.

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Diebold, Incorporated. 2000. Mailing No. 3: Supplemental Response to Request for Information. July 26, 2000.

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Hazardous and Toxic Materials Office. March 1995. Factsheet: Waste Management and Minimization for Bluelining and Electrostatic Plotting, City of Los Angeles. http://www.westp2net.org/facts/ENVIRO5.HTM.

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Site Location: Gardner Denver Machinery

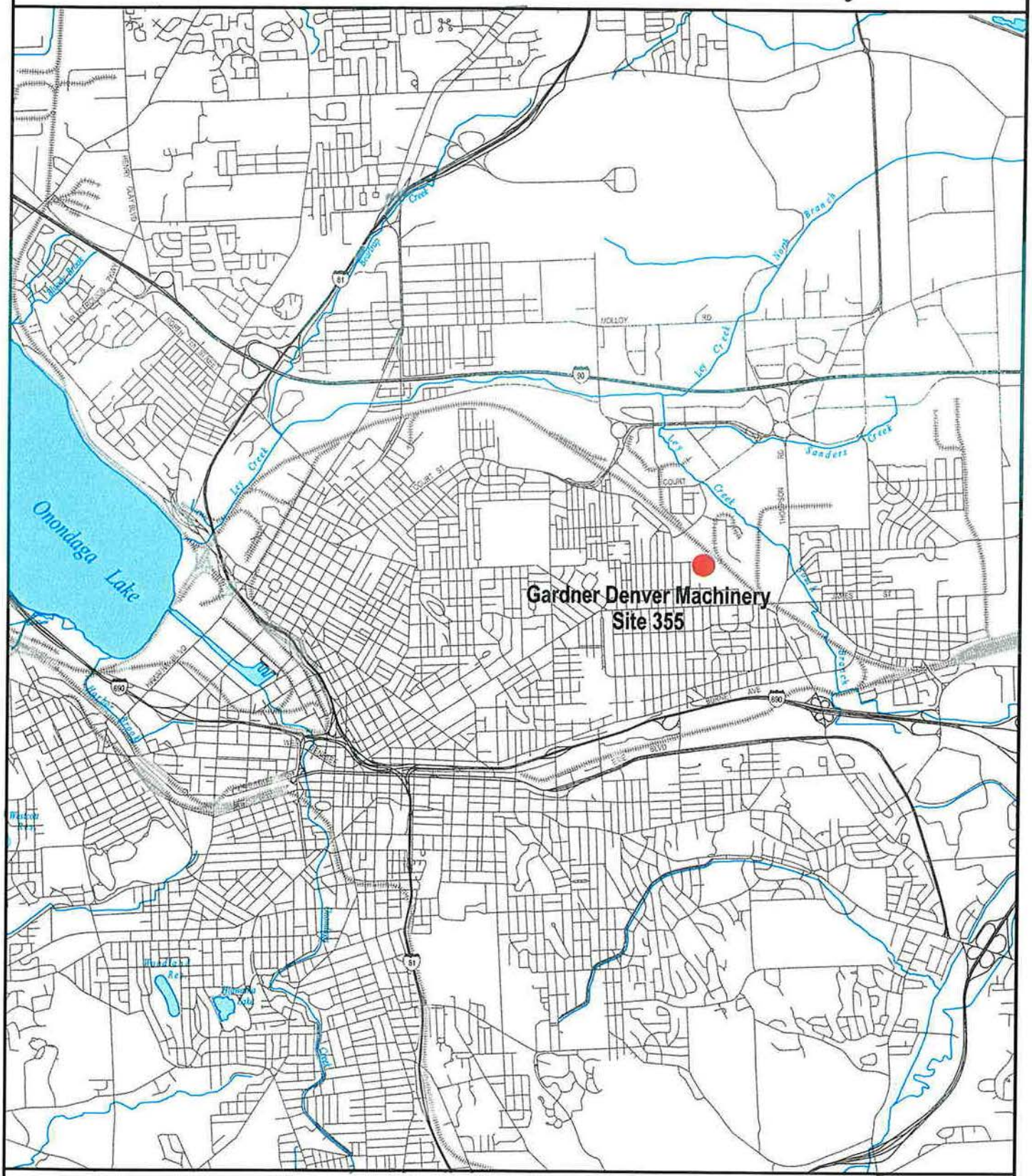
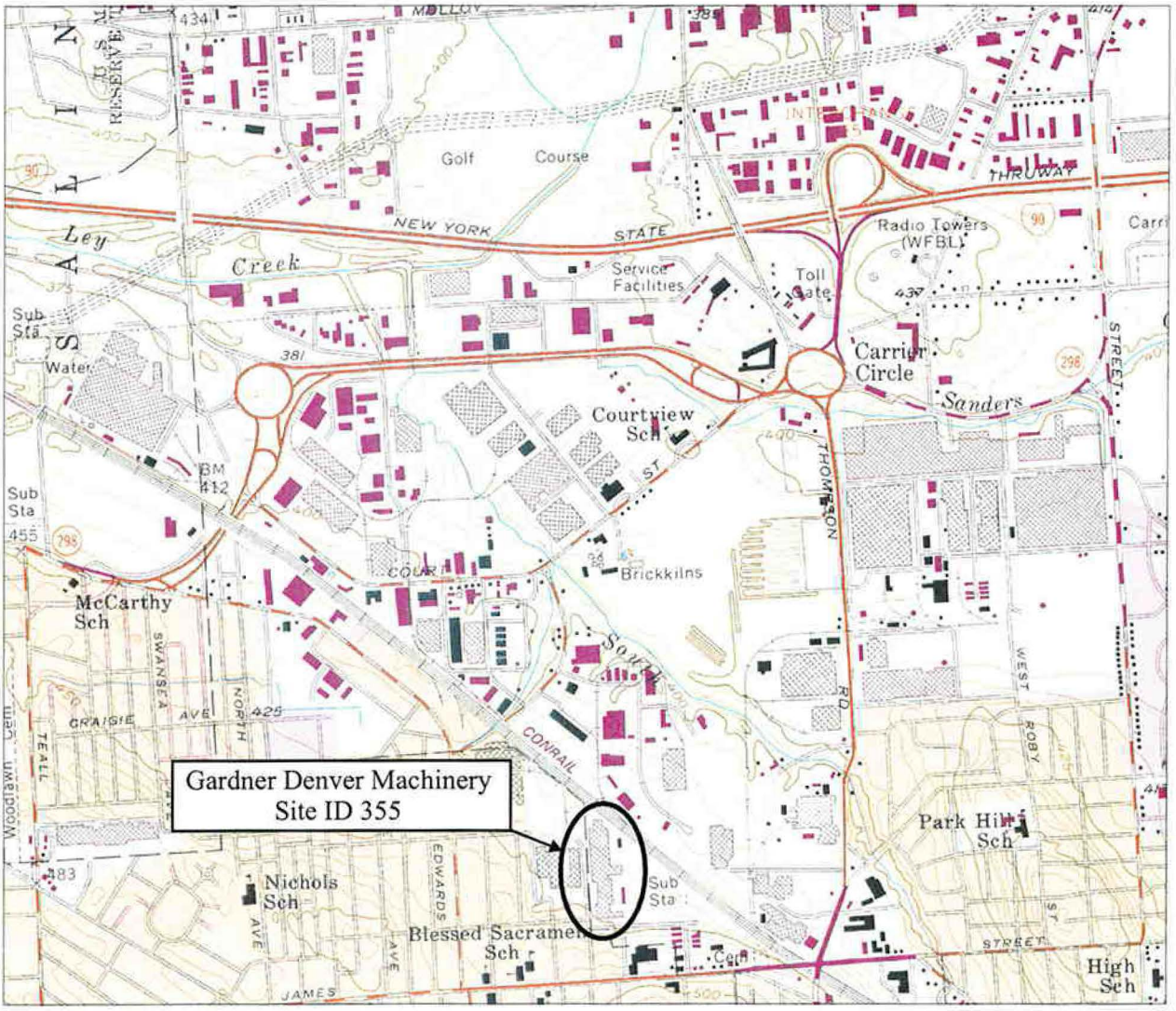


Figure 1



SCALE 1:24 000

1 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 5 0 1 KILOMETRE

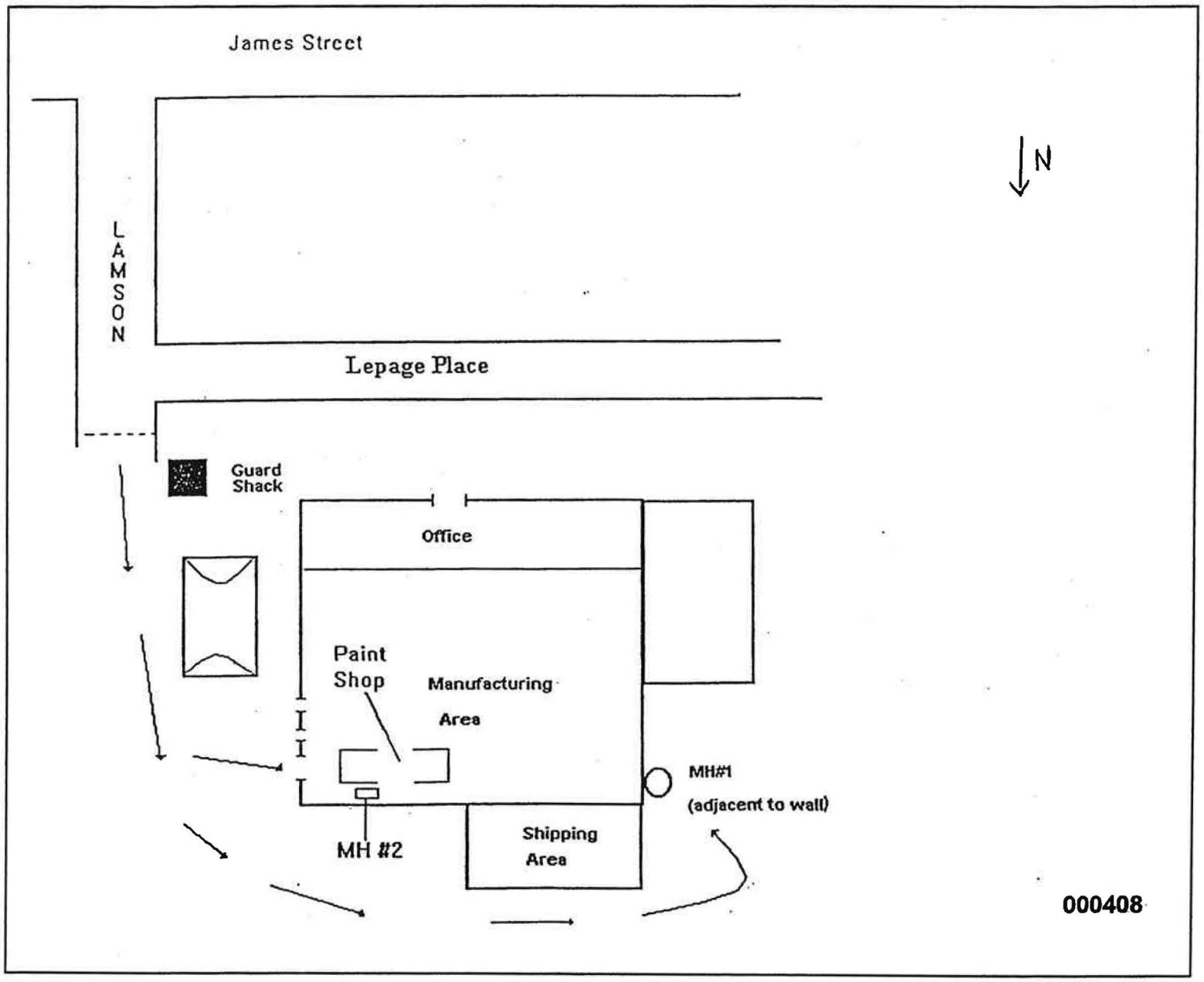
CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
DEPTH CURVES AND SOUNDINGS IN FEET—DATUM IS 363 FEET IN ONONDAGA LAKE

N

United States Geological Survey
Syracuse East Quadrangle
Onondaga County, New York

Figure 2
Gardner Denver Machinery
Site ID 355
Lamson Street, Syracuse, New York

TAMS



NTS

Figure 3
Industrial Site Plan

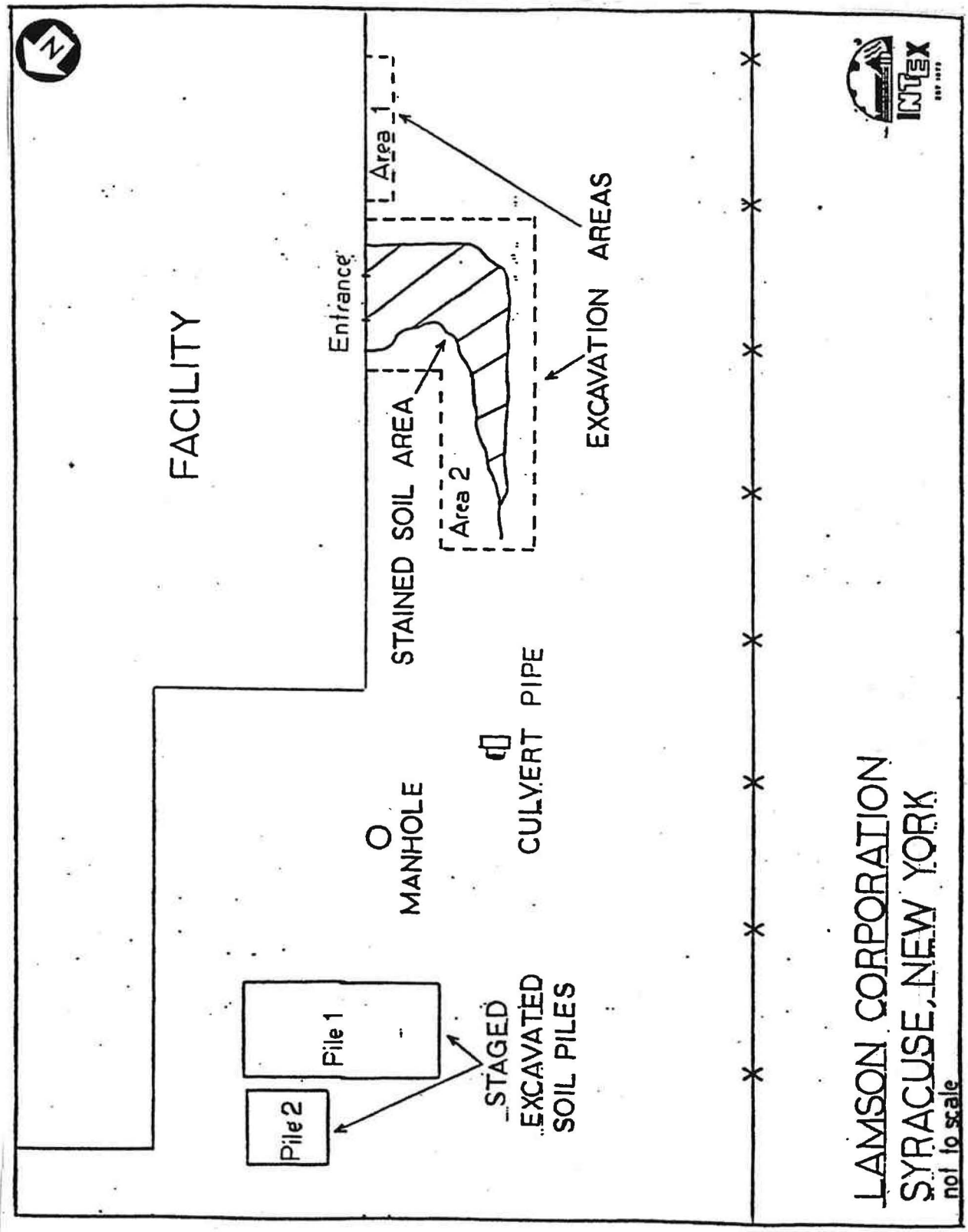


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Figure 4
Soil Excavation Plan